

# EGR 811 – Foundations of Engineering Education, FS17

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**Instructor:** Dr. Recktenwald, [gdr@egr.msu.edu](mailto:gdr@egr.msu.edu)

*Office:* 2328b Engineering Building, (517) 432-3658,

**Lectures:** Tu & Tr from 12:40-2:00 in 1202 Engineering Building

**Office hours:** TBD

**Website:** Desire-to-learn (D2L.msu.edu) - Check for announcements, updates, & solutions.

**Textbook(s):** "Teaching and Learning Stem – A practical Guide" by Felder and Brent.

"Classroom Assessment Techniques: A Handbook for College Teachers" by Angelo and Cross

Other assigned readings will be provided by the instructor or available electronically.

**Overview:** This course is designed to serve as a practical course in engineering pedagogy for graduate students interested in academic careers. The course is a mixture of three components: developing practical skills and knowledge of pedagogy, understanding engineering education literature and best practices, special topics relevant to building a successful academic career.

\*\* Successful completion of this course counts toward the MSU Certification in College Teaching program ( <http://grad.msu.edu/CCTP> )

**Content:** Some course content will be adjusted to fit the specific experiences and goals of the students taking the course.

This course will contain several special topics by guest lecturers.

**Objectives:** Upon completing this course students will be able to ...

- (1) Design course objectives for a new course.
- (2) Implement backwards course design.
- (3) Develop assessments relevant to course objectives.
- (4) Construct a "Teaching Philosophy Statement".
- (5) Conduct a teaching assignment and evaluate teaching.
- (6) Identify best practices for engineering education.
- (7) Assess others work and utilize critiques to enhance their own.

**Course Projects:**

**Class discussion (20% + 10%)** – Classroom discussions are a significant part of this course. Your discussion grade is based on your participation in course discussions and leading of an in-class reading discussion.

**Teaching Statement or Teaching Philosophy (15%)** – Academic positions with a teaching requirement require a 1-2 pages document that outlines your teaching philosophy, experience, and goals. You will be writing and editing your teaching statement throughout the semester.

**Teaching practicum (25%)** – Since this is a teaching course, you are required to teach one lecture during the semester. I will work with you to find a course and instructor or ‘class’. Your grade for this project will be comprised of your preparation, your notes, a statement of how this lecture is related to course objectives, the lecture itself, and a reflection paper on the experience.

**Peer assessment report (10%)** – For this project you will attend two lectures, one by a professor in your department and one by a peer in this class. After attending the lectures you will write up an assessment of the strengths and weaknesses of the presentations you observed.

**Course development portfolio (20%)** – As we discuss course design you will be working to design an engineering course in your area of expertise. Your course design assignments and feedback will constitute your course development portfolio.

**Grading:** Your course grade will be based on your in-class grade total, see projects for percentages.

class total percent	≥90%	≥85%	≥80%	≥75%	≥70%	≥65%	≥60%	<60%
course grade	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0

**Peer Review:** Many assignments in this course will reviewed and critiqued by other members of the class. All critiques are required to be constructive. The peer review process is heavily utilized in academia, and it is vital that we understand how to give and how to receive critiques.

**Electronics:** No Cellphones. Computers may be used with prior permission by instructor.

**Class Attendance:** Because this is a discussion based class, class absence and tardiness significantly detract from your learning and peer learning. *Students are expected to prepare for class by reading material prior to class and bringing questions and/or discussion points to lecture.* Lecture notes should be obtained from a peer in the class, the instructor is not responsible for lecture notes due to a student's absence.

**Communication:** Email and other communication should comply with professional standards of corporate best practice. Use informative subject lines like “EGR 811 question: What is scaffolding?”.

**Accommodations for Students with Disabilities:** Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

**Ethics:** Engineers must adhere to a rigorous code of professional ethics. Unethical conduct in ME811 will result in the maximum disciplinary action permitted by Michigan State

University. Unethical conduct in this class includes, but is not limited to, plagiarism of papers. “Turn-it-in” will be used to check the originality of student work. There is a professional duty to report unethical conduct by others, including peers. If you have any questions, your instructor is available to discuss issues of professional expectations and ethics.

The Associate Students of Michigan State University (ASMSU) proudly launched the following Spartan Code of Honor academic pledge.

**As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.” – Spartan pledge**

**Notable Course Dates:**

<b>Day</b>	<b>Date</b>	<b>Topics</b>
1	8/31 R	Introductions / Objectives - Discussion
4	9/12 T	<b>Pat Walton – Student learning / preferences</b>
7	9/21 R	<b>Breana Yaklin – Backwards Course design / QM</b>
9	9/28 R	<b>Neeraj Buch – Active Learning</b>
12	10/10 T	<b>Phil Deaton – Accessibility</b>
14	10/17 T	<b>Patti Stewart – Ruberics</b>
16	10/24 T	<b>Diana Briedis – ABET and Assessment</b>
19	11/2 R	<b>Kendra Cheruvellil – Teams and Teamwork</b>
22	11/14 T	Panel I - Academic Success
23	11/16 R	Panel I - Academic Success
25	11/23 R	Thanksgiving – No class
26	11/28 T	Student Presentations
27	11/30 R	Student Presentations
28	12/5 T	Student Presentations
29	12/7 R	Student Presentations / Course closure
30*	<b>12/14 R</b>	Presentations (if needed)

## Tentative Course Schedule: EGR 811

Day	Date	Topics	Reading	Bring to Class
1	8/31 R	Introductions / Objectives - Discussion		
2	9/5 T	Introduction to the Classroom	Felder: Chapter 1 & 4	
3	9/7 R	The Student: What is learning?	How People Learn: Ch 1-3	Sub. Teaching time and location
4	9/12 T	Pat Walton – Student learning / preferences		
5	9/14 R	How the Mind Works	How People Learn – Ch 5 Brain Rules - Ch 2 & 3	
6	9/19 T	Backwards Design	Understanding by Design – Ch 1-3	Student Learning Outcomes
7	9/21 R	Breana Yaklin – Backwards Course design / QM		
8	9/26 T	What is understanding?	Understanding by Design 4 &5	
9	9/28 R	Neeraj Buch – Active Learning		
10	10/3 T	Effective Instruction	Felder Ch 5 & 6 (Skim ch 7)	
11	10/5 R	The Learning environment	How People Learn Ch 6, 7 & 9	
12	10/10 T	Phil Deaton – Accessibility		
13	10/12 R			
14	10/17 T	Patti Stewart – Ruberics		
15	10/19 R	Assessment goals	Knowing what students know (Ch 2 & 3)	
16	10/24 T	Diana Briedis – ABET and Assessment		
17	10/26 R	In class – Course Design work session	No Reading	Student Learning Outcomes, and Concept Maps
18	10/31 T	Crafting Assessments	Felder (Ch 8)	
19	11/2 R	Kendra Cheruvellil – Teams and Teamwork		
20	11/7 T	Problem solving skills	Felder Chapter 9 & 11	
21	11/9 R	How to write a Teaching Statement	See D2L for readings Felder Chapter 10	
22	11/14 T	Panel I - Academic Success		
23	11/16 R	Panel I - Academic Success		
24	11/21 T	In class - Course Design and Teaching Statement work session		
25	11/23 R	Thanksgiving – No class		
26	11/28 T	Student Presentations		
27	11/30 R	Student Presentations		
28	12/5 T	Student Presentations		
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